Amendments to the Claims

The listing of claims replaces all prior versions, and listings, of claims in the application:

Listing of Claims:

1-24 Canceled

25. (New) A position sensor circuit for determining the position of an actuator, the circuit comprising:

an oscillator circuit comprising:

a variable inductor; and

a capacitor;

said variable inductor being separated from ground by the capacitor;

and wherein output of the oscillator circuit is used to indicate relative position of the actuator relative to the inductor.

26. (New) The position sensor circuit of claim 25 wherein the variable inductor is in series with the capacitor.

27. (New) The position sensor circuit of claim 25 further comprising:

another capacitor; and

an amplifier;

wherein said another capacitor being located in a feedback path from the connection between said variable inductor and said capacitor to said amplifier.

28. (New) The position sensor circuit of claim 27 wherein said another capacitor is capable of blocking DC current.

29. (New) The position sensor circuit of claim 25 wherein output is provided as an oscillatory signal having a frequency.

30. (New) The position sensor circuit of claim 29 wherein said frequency is comprised in a sine wave oscillator output; and wherein said sine wave oscillator output is rectified to a DC signal.

31. (New) The position sensor circuit of claim 27 further comprising a component capable of providing a square wave output, said component receiving, as input, an output signal from said amplifier.

32. (New) The position sensor circuit of claim 27 wherein a signal from the amplifier is provided to a frequency to voltage conversion circuit.

33. (New) The position sensor circuit of claim 25 wherein output is provided as a signal selected from the group consisting of a sine wave, a square wave and a DC signal.

34. (New) The position sensor circuit of claim 31 further comprising a component capable of providing a time measurement, said time measurement being obtained from a predetermined value and said square wave output.

35. (New) The position sensor circuit of claim 25 wherein said variable inductor comprises a coil and an actuator; and wherein a spatial relationship between said actuator and said coil determines a reactance.

36. (New) The position sensor circuit of claim 35 wherein said actuator comprises a soft ferrite material.

37. (New) The position sensor circuit of claim 35 wherein said coil comprises a ferrite shield.

38. (New) The position sensor circuit of claim 35 wherein a density of windings of said coil substantially at each end of the coil is higher a density of windings of said coil substantially at a center of said coil.

39. (New) The position sensor circuit of claim 35 wherein said coil is shorter than a measuring range; and wherein said actuator comprises a tapered end.

40. (New) The position sensor circuit of claim 35 wherein said coil is shorter than a measuring range; and the actuator is a copper region on a midpoint of a steel shaft; wherein that region has a leading edge which is helical.

41. (New) The position sensor circuit of claim 35 wherein said coil is shorter than a measuring range; and the actuator is a copper region on a midpoint of a steel shaft, wherein that region has a leading edge which is pointed.

42. (New) The position sensor circuit of claim 35 wherein the actuator has a substantially spiral shape and the coil is shorter than the radial stroke of the actuator;
whereby angular position can be detected.

43. (New) The position sensor circuit of claim 35 wherein the actuator held in position by a substantially elastic support;
whereby acceleration can be detected.

44. (New) The position sensor circuit of claim 35 wherein the core comprises a magnetic material; and wherein said magnetic material has a substantially E shaped cross section; and wherein said substantially E shape has a thickness greater than zero;
whereby a proximity sensor is obtained.

45. (New) The position sensor circuit of claim 35 wherein said coil is shorter than a measuring range; and wherein said actuator comprises a cam shaped actuator;
whereby radial position can be detected.

46. (New) The position sensor circuit of claim 39 further comprising:
another oscillator circuit comprising:
another variable inductor; and

another capacitor;

said another variable inductor being separated from ground by said another capacitor;

wherein said another variable inductor comprises another coil and another actuator; and wherein a spatial relationship between said another actuator and said another coil determines another inductance;

wherein said another coil is shorter than a measuring range; wherein said another actuator comprises a tapered end; and

wherein said coil and said another coil are wired in series.

47. (New) The position sensor circuit of claim 46 wherein said coil and said another coil face each other; and wherein said actuator and said another actuator comprise with a same cam shaped actuator between said coil and said another coil.

48. (New) The position sensor circuit of claim 35 wherein said coil is shorter than a measuring range; and wherein said actuator comprises a cam shaped actuator;
whereby radial position can be detected.

49. (New) The position sensor circuit of claim 39 further comprising:

another oscillator circuit comprising:

another variable inductor; and

another capacitor;

said another variable inductor being separated from ground by said another capacitor;

wherein said another variable inductor comprises another coil and another actuator; and wherein a spatial relationship between said another actuator and said another coil determines another inductance;

wherein said another coil is shorter than a measuring range; wherein said another actuator comprises a tapered end; and

wherein said coil and said another coil are wired in parallel.

50. (New) The position sensor circuit of claim 46 wherein said coil and said another coil face each other; and wherein said actuator and said another actuator comprise with a same cam shaped actuator between said coil and said another coil.

51. (New) The position sensor circuit of claim 39 wherein said actuator comprises a metal shaft having a bias cut; whereby a radial position of the metal shaft can be detected.

52. (New) The position sensor circuit of claim 39 wherein said actuator comprises a magnetic steel shaft having a copper coated section; and wherein said copper coated section comprises an edge forming a helix.

53. (New) The position sensor circuit of claim 39 wherein said actuator comprises a magnetic steel shaft having a copper coated section; and wherein said copper coated section comprises an edge forming a pointed shape.

54. (New) The position sensor circuit of claim 31 further comprising:

a counter receiving the square wave output as input; and

a controller, wherein an on-board clock of said controller sets a count window in said counter;

and wherein said counter counts cycles of the oscillatory signal, and where in the counted cycles are used to create output.

55. (New) The position sensor circuit of claim 31 further comprising:

a gate controller,

wherein a frequency of the square wave output is used to set a gate duration of said gate controller;

a free-running oscillator of frequency higher than the frequency of the square wave output; and

a digital output circuit capable of counting cycles of said free running oscillator;

wherein the counted cycles are used to create output.